

Table S1. Main Demographic Characteristics according to the sleep quality.

	Good (n= 69288)	Poor (n= 38430)	P value
Male Sex (n, %)	41647 (60.1%)	21774 (56.7%)	<0.001
Age (year)	39.9 ± 7.0	39.4 ± 7.4	<0.001
Glucose (mg/dl)	95.4 ± 14.3	95.4 ± 15.5	0.714
HOMA-IR	1.6 ± 1.2	1.6 ± 1.3	0.961
Total cholesterol (mg/dL)	194.6 ± 33.6	194.9 ± 34.4	0.198
Triglyceride (mg/dL)	118.1 ± 81.6	119.8 ± 87.2	0.002
HDL-cholesterol (mg/dL)	58.5 ± 15.4	59.1 ± 15.7	<0.001
hsCRP (mg/L)	0.1 ± 0.3	0.1 ± 0.3	0.058
Height (cm)	168.2 ± 8.2	167.7 ± 8.3	<0.001
Weight (kg)	66.8 ± 12.8	66.4 ± 13.1	<0.001
BMI (kg/m ²)	23.5 ± 3.3	23.5 ± 3.4	0.679
BMI Category (n, (%))			<0.001
Underweight	3156 (4.6%)	1965 (5.1%)	
Normal	29322 (42.3%)	16315 (42.5%)	
Overweight	16264 (23.5%)	8669 (22.6%)	
Obese	18267 (26.4%)	9920 (25.8%)	
Severe Obese	2279 (3.3%)	1561 (4.1%)	
Male			<0.001
Underweight	411 (1.0%)	196 (0.9%)	
Normal	11763 (28.2%)	6137 (28.2%)	
Overweight	12261 (29.4%)	6337 (29.1%)	
Obese	15364 (36.9%)	7942 (36.5%)	
Severe Obese	1848 (4.4%)	1162 (5.3%)	

Female			<0.001
Underweight	2745 (9.9%)	1769 (10.6%)	
Normal	17559 (63.5%)	10178 (61.1%)	
Overweight	4003 (14.5%)	2332 (14.0%)	
Obese	2903 (10.5%)	1978 (11.9%)	
Severe Obese	431 (1.6%)	399 (2.4%)	
Waist Circumference (cm)	82.4 ± 9.4	82.2 ± 9.8	0.059
SBP (mmHg)	109.0 ± 12.6	108.6 ± 12.6	<0.001
DBP (mmHg)	70.8 ± 10.0	70.6 ± 10.1	0.004
Hypertension (%)	11.1%	11.7%	0.005
Diabetes (%)	3.7%	4.3%	<0.001
Current smoker (%)	19.1%	21.2%	<0.001
Average alcohol use (g/day)	11.9 ± 18.8	14.8 ± 23.1	<0.001
Regular exercise (%)	22.4%	20.1%	<0.001
Sleep duration (minute)	399.5 ± 56.7	347.3 ± 55.2	<0.001
Global PSQI score	3.5 ± 1.2	7.5 ± 1.8	<0.001

Values are mean (±SD); HDL = high density lipoprotein cholesterol; SBP = systolic blood pressure; DBP = diastolic blood pressure; BMI = body mass index; HOMA-IR = homeostasis model assessment of insulin resistance; PSQI = Pittsburgh Sleep Quality Index.

Table S2. The Odds Ratios and 95% confidence interval of underweight, overweight and obesity with respect to normal body weight defined by the conventional cutoff of BMI according to the sleep duration.

	Underweight vs normal	Overweight vs normal	Obesity vs normal
All participants			
Unadjusted			
< 7 hours	0.64 (0.61 - 0.68)	1.50 (1.46 - 1.55)	1.76 (1.63 - 1.89)
≥7 and <9hours	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
≥ 9 hours	1.72 (1.47 – 2.02)	0.57 (0.49 - 0.66)	0.94 (0.69 – 1.28)
Adjusted			
< 7 hours	0.85 (0.79 - 0.91)	1.22 (1.18 - 1.27)	1.58 (1.44 - 1.73)
≥7 and <9hours	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
≥ 9 hours	1.14 (0.95 - 1.36)	0.88 (0.73 – 0.996)	1.48 (1.04 – 2.11)
Male participants			
Unadjusted			
< 7 hours	0.64 (0.54 - 0.75)	1.18 (1.14 - 1.22)	1.39 (1.27 - 1.51)
≥7 and <9hours	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
≥ 9 hours	-	-	-
Adjusted			
< 7 hours	0.63 (0.52 - 0.77)	1.20 (1.15 - 1.25)	1.51 (1.36 - 1.67)
≥7 and <9hours	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
≥ 9 hours	-	-	-
Female participants			
Unadjusted			
< 7 hours	0.88 (0.85 - 0.94)	1.29 (1.21 - 1.37)	1.68 (1.45 - 1.94)
≥7 and <9hours	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
≥ 9 hours	1.26 (1.07 - 1.49)	1.00 (0.83 – 1.21)	1.15 (0.75 - 1.79)

Adjusted			
< 7 hours	0.89 (0.83 - 0.96)	1.26 (1.17 - 1.36)	1.79 (1.49 – 2.13)
≥7 and <9hours	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
≥ 9 hours	1.12 (0.93 - 1.34)	0.74 (0.78 - 1.17)	1.34 (0.83 – 2.16)

Adjusted for age, sex, regular exercise, alcohol intake, HDL-cholesterol, triglyceride, smoking, hsCRP, diabetes mellitus, systolic blood pressure (sex excluded in gender subgroup analysis)

Conventional cutoff of BMI: Underweight ($\text{BMI} < 18.5 \text{ kg/m}^2$), normal body weight ($18.5 \text{ kg/m}^2 \leq \text{BMI} < 25 \text{ kg/m}^2$), overweight ($25 \text{ kg/m}^2 \leq \text{BMI} < 30 \text{ kg/m}^2$), Obesity ($30 \text{ kg/m}^2 < \text{BMI}$)

Table S3. The Odds Ratios and 95% confidence interval of underweight, overweight and obesity with respect to normal body weight defined by the conventional cutoff of BMI according to the sleep quality.

	Underweight vs normal	Overweight vs normal	Obesity vs normal
All participants			
Unadjusted			
Good	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Poor	1.14 (1.07 - 1.20)	0.99 (0.96 – 1.02)	1.25 (1.17 - 1.34)
Adjusted			
Good	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Poor	1.02 (0.95 - 1.09)	1.02 (0.99 - 1.06)	1.29 (1.19 - 1.39)
Male participants			
Unadjusted			
Good	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Poor	0.92 (0.78 - 1.09)	0.99 (0.96 - 1.03)	1.22 (1.13 - 1.32)
Adjusted			
Good	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Poor	0.93 (0.77 - 1.13)	0.96 (0.92 - 1.004)	1.19 (1.09 – 1.30)
Female participants			
Unadjusted			
Good	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Poor	1.11 (1.04 - 1.18)	1.17 (1.10 - 1.25)	1.60 (1.39 - 1.83)
Adjusted			
Good	1.00 (Reference)	1.00 (Reference)	1.00 (Reference)
Poor	1.04 (0.97 - 1.12)	1.21 (1.13 - 1.31)	1.64 (1.38 - 1.95)

Adjusted for age, sex, regular exercise, alcohol intake, HDL-cholesterol, triglyceride, smoking, hsCRP, diabetes mellitus, systolic blood pressure (sex excluded in gender subgroup analysis)

Conventional cutoff of BMI: Underweight ($\text{BMI} < 18.5 \text{ kg/m}^2$), normal body weight ($18.5 \text{ kg/m}^2 \leq \text{BMI} < 25 \text{ kg/m}^2$), overweight ($25 \text{ kg/m}^2 \leq \text{BMI} < 30 \text{ kg/m}^2$), Obesity ($30 \text{ kg/m}^2 < \text{BMI}$)